

REMARKS

Claims 1 - 18 are pending in this application of which claims 3 -18 have been withdrawn from consideration. By this Amendment, claim 1 has been amended. Applicants respectfully submit that no new matter has been added. It is believed that this Amendment is fully responsive to the Office Action dated May 1, 2002.

As to the Merits:

As to the merits of this case, the Examiner sets forth the following rejection:

claims 1 and 2 stand rejected under 35 U.S.C. § § 102(b) as being anticipated by Heinouchi.

This rejection is respectfully traversed.

Significant structural arrangements of the Applicants' claimed invention include a weight portion that is connected to the not permanently oscillating transducer, and supported at a position different from the center of gravity of the transducer and the weight portion itself; and a detecting section which is installed on the base and detects the amount of characteristic corresponding to a torsion of the transducer caused by an angular moment centered on the supporting position of the weight portion upon application of acceleration in one direction to the transducer and the weight portion, wherein a face of the transducer is made flush with a face of the weight portion.

The applied reference of Heinouchi fails to disclose such features. That is, Heinouchi discloses the principle of detecting an acceleration by detecting the amount of characteristic (voltage) exerted in the transducer corresponding to an angular moment that is exerted in the transducer upon application of an acceleration to the transducer and the weight portion.

While, it is true that claim 1 of the present invention is similar to Heinouchi in his components, namely, the transducer, the weight portion and the detecting section, there is a significant difference in the principle of detection. That is, according to Heinouchi, the transducer is vibrated beforehand, and acceleration caused while the transducer is vibrating is detected. According to claim 1 of the invention, on the other hand, a torsion vibration is caused only when acceleration is caused.

Thus, according to the invention, the transducer does not always vibrate at the time of detecting acceleration.

More specifically, in Heinouchi piezoelectric devices 24a, 24b, 24c and 24d are attached to a vibrating member 12 which is driven from supplied drive signals, and a change in a force when acceleration is applied is detected by the piezoelectric elements 24c-24d.

This is in contrast to the present claimed invention, wherein a transducer (piezoelectric element) is not driven by a drive circuit.

In addition, Heinouchi fails to disclose that a face of the transducer is made flush with a face on the weight portion, as required by claim 1.

That is, according to Heinouchi and as illustrated in Figs. 1 and 3, “the weight 20 is connected to the vibrating member 12 by other connecting portions 22.” In other words, there is no direct connection between weight 20 and vibrating member 12.

In view of the aforementioned amendments and accompanying remarks, claim 1, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up version of the changes made to the by the current amendment. The attached page is captioned "Version with markings to show changes made."

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosures: Version with markings to show changes made

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IN THE CLAIMS:

Claim 1 has been AMENDED to read as follows:

1. (Four Times Amended) An acceleration sensor for detecting acceleration, comprising:
 - a base;
 - a transducer that is supported at the base;
 - a weight portion that is connected to the not permanently oscillating transducer, and supported at a position different from the center of gravity of the transducer and the weight portion itself; and
 - a detecting section which is installed on the base and detects the amount of characteristic corresponding to a torsion of the transducer caused by an angular moment centered on the supporting position of the weight portion upon application of acceleration in one direction to the transducer and the weight portion;
 - wherein a face of the transducer is made flush with a face of the weight portion.